

March 2 , 1926.

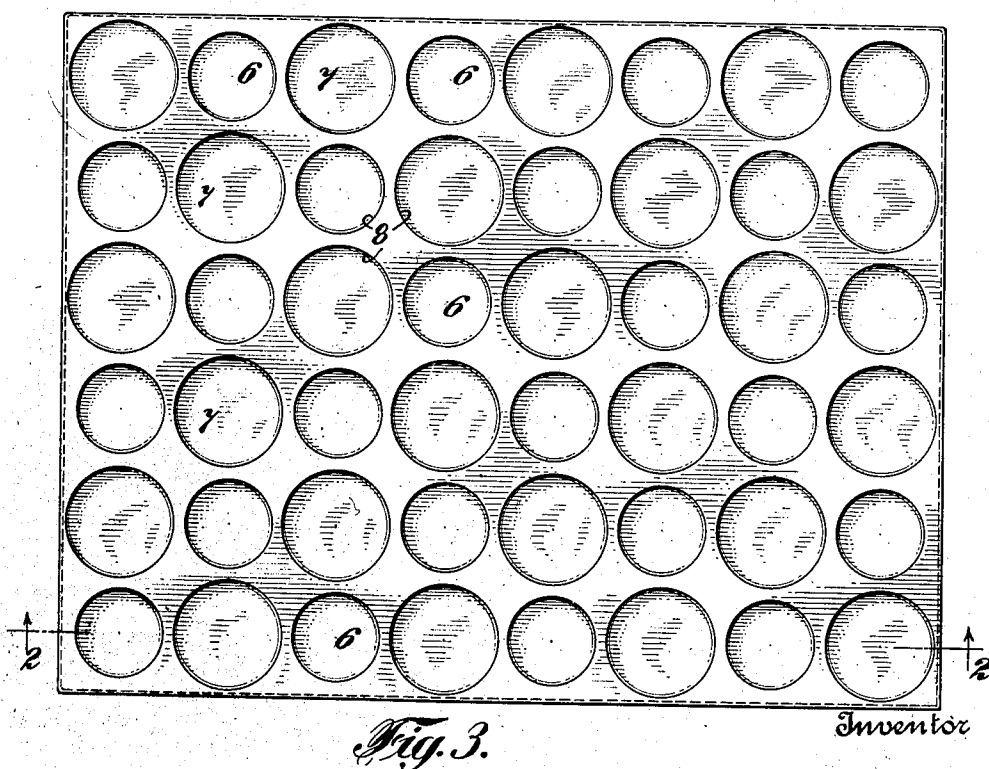
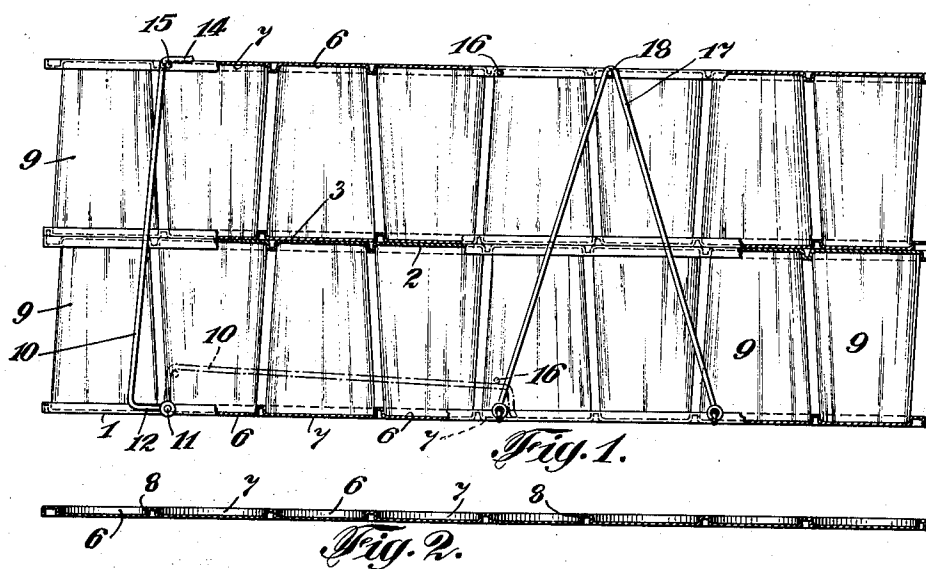
1,574,904

P. KUCERA

COLLAPSIBLE CRATE

Filed Dec. 19, 1921

2 Sheets-Sheet 1



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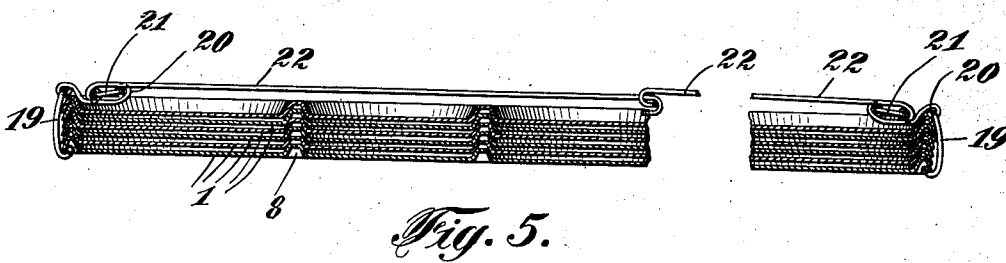
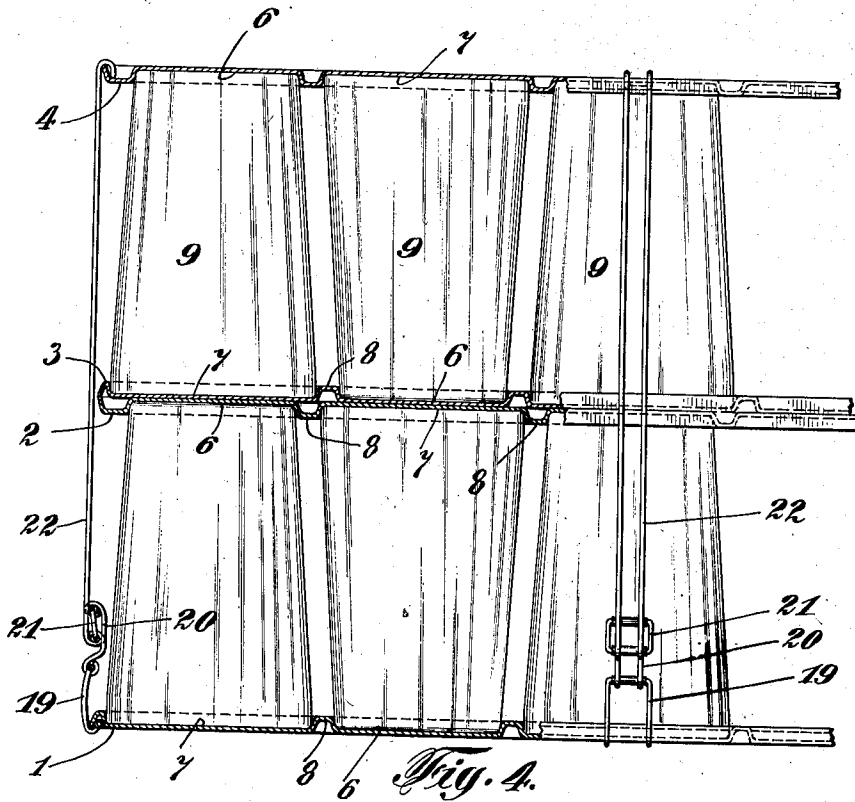
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COLLAPSIBLE CRATE

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

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COLLAPSIBLE CRATE.

Application filed December 19, 1921. Serial No. 523,343.

To all whom it may concern:

Be it known that I, PETER KUCERA, a citizen of the United States, and a resident of the city of Connelldsville, in the county of Fayette, State of Pennsylvania, have invented new and useful Improvements in Collapsible Crates, of which the following is a specification.

The present invention relates broadly to shipping and storing containers, and more especially to collapsible crates.

Heretofore in packaging of glassware and the like for shipping it has been the practice to test the containers as they leave the leery by passing the containers through a test ring to gage the containers as to correctness of size and shape. The containers are then set on pans which are transferred to trucks that are taken into the packing room when each container is carefully wrapped in shock absorbing material such as corrugated paper or the like, and then carefully packed in a strong packing box either of paper-board or other container, with a large amount of shock absorbing material such as excelsior, dry grass, etc., stuffed between the articles. Such packing materials were bulky, and the packing takes a great deal of handling, and the effectiveness of the packing is dependent upon the individual care of the packer. Furthermore in substantially all cases the packing material is very inflammable so that the danger of fire in a packing house was a very formidable matter. Such packages waste shipping space and are expensive, in that all of the packing material is destroyed when the goods were delivered at their destination.

The present invention overcomes the difficulties of the known art by providing a packing crate having the elements thereof constructed and associated in such manner as to provide inherent elasticity in the completed package and at the same time securely maintain the goods supported sufficiently to prevent contact between individual pieces, thereby preventing breakage. Furthermore, the present invention automatically provides a measuring element which automatically sizes ware being packed both as to diameter and out of round, thereby obviating the possibility of packing bad shaped glass or of sending out mixed shipments where a definite size is desired. The present invention may be constructed in va-

rious ways and from different materials, but preferably it comprises sheet metal shelves arranged to be stacked in layers, wherein the ware itself comprises the supporting and separating member between the several shelves so that when the ware is removed the shelves may be brought into close contact one with the other and thereby be nested in such manner as to occupy relatively small space. Consequently these crates may be reshipped for reuse a large number of times.

After having generally described the invention it may be stated that the principal object thereof is to provide a shipping or storing crate of the character specified wherein the goods comprises the transverse or inter supports.

Another and further object of the present invention is a shipping crate comprising a plurality of shelves provided with recesses adapted to receive the ends of tumblers or the like whereby a plurality of tumblers may be individually sustained during handling and shipping.

A still further object of the present invention is a crate or the like provided with definite sized recesses or openings which are adapted to comprise measuring or sizing gages for goods being packed.

A further and more specific object of the present invention is a collapsible crate of the character specified and wherein the goods being packed are hollow with the ends thereof of different diameters and with the shelves constructed of resilient material and nested in such manner that the smaller ends of the goods in one layer are arranged adjacent the larger ends of the goods of the next layer whereby shocks tending to collapse the crate are sustained by the resiliency of the shelves.

A still further and more specific object of the present invention is a collapsible crate for packaging glass tumblers or the like with the shelves in the crate comprising embossed sheet metal plates with the embossments comprising receptacles for receiving the ends of the tumblers or the like and with constraining members adapted to secure the shelves in position both when the crate is filled and when the crate is empty.

Other and further objects of the present invention will in part be obvious and will in part be pointed out hereinafter by refer-

ence to the accompanying drawings throughout which like characters are used to represent like parts.

It is realized that the present invention may be embodied in constructions other than those specifically shown and described so therefore it is desired that the disclosure herewith shall be considered as illustrative and not in the limiting sense.

Figure 1 is an end view of one embodiment of the present invention;

Figure 2 is a longitudinal section on line 2-2 Figure 3;

Figure 3 is a plan view of one of the shelves;

Figure 4 illustrates a slightly different form of retaining member;

Figure 5 is a view illustrating the shelves nested for return shipment.

Referring now to the drawings which illustrate one embodiment of the present invention the crate may comprise a plurality of shelves 1, 2, 3 and 4 which preferably, though not necessarily, are formed by embossing sheet metal, or other suitable material. In order to conserve space where the crates are adapted for shipping packers' jars, tumblers, or the like, it is preferred that the embossments shall comprise small cylindrical cups 6 interspaced between larger cylindrical cups 7 and preferably the embossments are arranged in rows although circular or other form of arrangement may be employed. The edges of the shelves preferably are turned as at 8 to provide a flange so that the edge of the shelf is substantially of the depth of the embossment. These shelves are preferably arranged with the embossments in such manner that the shelves may be rotated or moved so that a large embossment 7 on one shelf will be arranged over a small embossment 6 on an adjoining shelf. By referring to Figures 1 and 4 which illustrate a crate with ware packed therein, it will be noted that the large embossments 7 fit the mouth of tumblers or packers' jar 9 while the small embossments 6 fit the bottoms of such tumblers. This fitting of the two ends of the tumblers into the embossments automatically sizes the ware being packed and also immediately discloses any jar which is badly distorted or out of round. In packing ware in this improved crate the ware is taken from the leer and set directly on the bottom pan with the tops and bottoms of the ware being positioned in accordance with the large and small embossments in the bottom shelf. After all of the embossments in the bottom shelf 1 have been filled with ware, a top shelf 2 is positioned over the ware which fits into the respective embossments on the shelf 2. A shelf 3 is then arranged over the shelf 2 with large embossments therein centralized as to the shelf 2 over the small embossments and vice

versa. The shelf 3 is now filled with ware in a manner similar to the first and the packing progresses in cycles similar to that described. The disclosure herewith illustrates two layers of ware although it is contemplated that a plurality of layers, more than two, may be utilized.

When the final cover 4 is applied over the top layer of ware the top and bottom covers are securely locked together by suitable locking devices. In Figure 1 the locking devices disclosed comprise an offset hook 10 which is pivoted to the bottom shelf as at 11 and is provided with an off-set 12 and also with a hook 14 adapted to engage a pin 15 on the top shelf. This hook is so constructed that when the shelves are collapsed and the hook 10 swung to the position indicated in dotted lines in Figure 1 the off-set 12 will lock over the pin 15 and the head or hook 14 will lock under the pin 16, thus locking the crate for reshipment. Another type of lock which may be used comprises a pivoted V-shaped ear or the like 17 adapted to hook over a pin 18.

The preferred type of lock, however, is illustrated in Figures 4 and 5 and comprises wire strap members formed of links with the first link 19 pivoted to the edge of the lower shelf 1 and connected to an offset link 20 which carries a short over-throw link 21 that is pivoted to the strap link 22. The strap link 22 is adapted to hook over the top shelf 4 and when the overthrow link 21 is pushed into position shown in Figure 4 the parts are securely locked together. When the crate is collapsed for reshipment preferably the parts are turned so that large embossments 7 in one shelf are arranged over corresponding large embossments 7 in the adjacent shelves and small embossments 6 are also arranged over small embossments 6. This permits the shelves to nest and also permits the fastening straps on both sides to be brought over and into engagement as illustrated in Figure 5 so that the parts are securely locked together for reshipment.

From the foregoing it will appear that the present invention facilitates rapid packing of glassware or the like and by very simple construction provides sufficient resilience to take up shocks of shipment and also provides a fireproof packing member which is adapted for large amounts of reuse.

I claim—

1. A collapsible crate comprising a plurality of shelves provided with recesses adapted to fit the ends of packers' tumblers or the like, said recesses being alternately large and small, whereby the large recesses fit the mouths of said tumblers and gage said mouths and the small recesses fit the bottoms of said tumblers and gage the bottoms thereof, and means for causing said shelves to clamp tumblers in position be-

tween said shelves when said shelves are filled with glassware.

2. A collapsible crate comprising a plurality of shelves of resilient material and provided with recesses adapted to fit the ends of packers' tumblers or the like, said recesses being alternately large and small, whereby the large recesses fit the mouths of said tumblers and comprise gages therefor, and the small recesses fit the bottoms of said tumblers and gage the bottoms thereof, and means for causing said shelves to clamp tumblers in position between said shelves when said shelves are filled with glassware, said recesses being arranged so that a small recess sets directly over a large recess whereby a shock transmitted through a tumbler in one layer is not directly transmitted to a tumbler in the next adjacent layer.

3. A packing unit comprising a plurality of sheets adapted to be spaced apart by articles to be packed; and means to clamp said sheets together while spaced to form a package of articles and to clamp said sheets together in close relation to form a knocked-down unit.

4. A packing unit comprising a plurality of sheets adapted to be spaced apart by articles to be packed; and quick acting means to clamp said sheets together while spaced to form a package of articles and to clamp said sheets together in close relation to form a knocked-down unit.

5. A packing unit comprising a plurality of sheets adapted to be spaced apart by articles to be packed; and hook members to clamp said sheets together while spaced to form a package of articles and to clamp said sheets together in close relation to form a knocked-down unit.

6. A packing unit comprising a plurality of sheets adapted to be spaced apart by articles to be packed; and pairs of hook members connected by contraction links to clamp said sheets together while spaced to form a package of articles and to clamp said sheets together in close relation to form a knocked-down unit.

7. A packing unit comprising a plurality of sheets adapted to be spaced apart by articles to be packed; and tension members connected by contraction links to clamp said sheets together while spaced to form a package of articles and to clamp said sheets together in close relation to form a knocked-down unit.

8. A packing unit comprising a plurality of sheets adapted to be spaced apart by articles to be packed; and pairs of tension members connected by contraction links to clamp said sheets together, while spaced to form a package of articles and to clamp said sheets together in close relation to form a knocked-down unit.

9. A package comprising an article having an annular rim at one end thereof, a flexible resilient supporting means resting upon said rim, and a second article having an end resting upon said flexible resilient supporting means, the end of the second article being smaller than the rim of the first article and positioned within a prolongation of the rim whereby transmission of vibration from one article to the other is diminished.

10. A package comprising an article having a rim at one end thereof, a yielding supporting means in contact with said rim, and a second article having an end in contact with said yielding supporting means, the end of the second article being smaller than the rim of the first article and positioned within a prolongation of the rim whereby transmission of vibration from one article to another is diminished.

11. A package comprising at least two tiers of articles each having a relatively large open end and a second end smaller than said open end, the small ends of the articles in one tier being positioned within prolongations of the open ends of the articles in an adjacent tier; and at least one sheet of resilient material interposed between adjacent tiers of articles, the small ends of the articles being enough smaller than the large open ends to enable portions of said sheet to act as elastic cushioning zones between the articles in one tier and aligned articles in an adjacent tier.

12. The method of packing hollow fragile articles having an open end and a second end smaller than the open end which consists in providing flat sheets with embossed portions approximating in size the diameter of an article at its open end, placing one of said sheets below and one above a tier of said articles with said embossed portions opposite the ends of the articles, pressing the said articles against the said portions so as to engage the same, superimposing a second tier of articles upon said first tier of articles with the small ends of the articles of one tier within the prolongation of the open ends of the articles of the other tier, and causing portions of said flat sheet to act as elastic cushioning zones between the articles in the adjacent tiers.

PETER KUCERA.